St. Mira's College for Girls, Pune
(Autonomous-Affiliated to Savitribai Phule Pune University)
Subject: Design and Analysis of Algorithms
Subject Code:MS11902
Semester: I
Year: 2021-22

All Units - focusing on Skill Development, Employability and Entrepreneurship

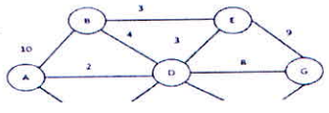
St.Mira's College for Girls ,Pune

M.Sc(C.S) Sem-I Subject: Design and Analysis of Algorithms

Flexi Test-1 Date:20-11-2021

Q.1 Attempt any 5 of the following(5x4=20 Marks)

a. Write an algorithm for merge sort. Give its time complexity.
b. Explain Horner's rule in detail.
c. Explain Asymptotic notations.
d. Explain transfer and conquer strategy in detail.
e. Solve 0/1 Knapsack problem with n=4,m=16,p=(10,20,15,8) , w=(8,4,8,2) using Greedy Approach.
f. What is a minimum spanning tree? Using Kruskal's algorithm find the minimum spanning tree of the following graph G.



Roll no 5802
Class: MCS(1)

20/11/21

Design & Analysis Algorithm

a) Merge Sort : Time complexity for all cases is O(nlogn).

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Algorithm
i = k = low,        where (low < high) , m = (high/2)
j = m+1,
while (i<=m and j<=high)
if (A[i] <= A[j])
B[k++] = A[i++]
else
B[k++] = A[j++]
}
  while(i<=m)
  B[k++] = A[i++]
  while(j<=high)
  B[k++] = A[j++]
  for i = low to high
  A[i] = B[i]
```

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